Florida

Long-Term Stewardship Site Highlights

Pinellas STAR Center

Major Activities - groundwater monitoring and sampling
Site Size - 40 hectares (100 acres)
Estimated Average Annual Cost FY 2000-2006 - n/a (costs begin in FY 2015)

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PINELLAS STAR CENTER[1]

1.0 SITE SUMMARY

1.1 Site Description and Mission

LONG-TERM STEWARDSHIP HIGHLIGHTS

Major Long-Term Stewardship Activities - groundwater monitoring and sampling
Total Site Area - 40 hectares (100 acres)
Estimated Volume of Residual Contaminants - unknown
Portions Requiring Long-Term Stewardship as of 2006 - 0
Average Annual Long-Term Stewardship Cost FY 2000-2006 - n/a (costs begin in FY 2015)
Landlord - Pinellas County, Florida

The Pinellas Science, Technology, and Research (STAR) Center, formerly known as the Pinellas Plant, occupies a 40-hectare (100-acre) site in western Florida on a peninsula bordered by the Gulf of Mexico and Tampa Bay, approximately ten kilometers (six miles) north of St. Petersburg. The Plant was part of the U.S. Department of Energy (DOE) and predecessor agency nuclear weapons complex from 1957 until 1995, when it was sold to the Pinellas County Industrial Council. DOE completed transfer of facility control to the Pinellas County Industrial Council for commercial/community use in 1997. Although the facility is no longer owned by DOE, DOE is still responsible for conducting the remaining environmental restoration activities at the site, primarily groundwater remediation and subsequent long-term surveillance and monitoring of the groundwater.

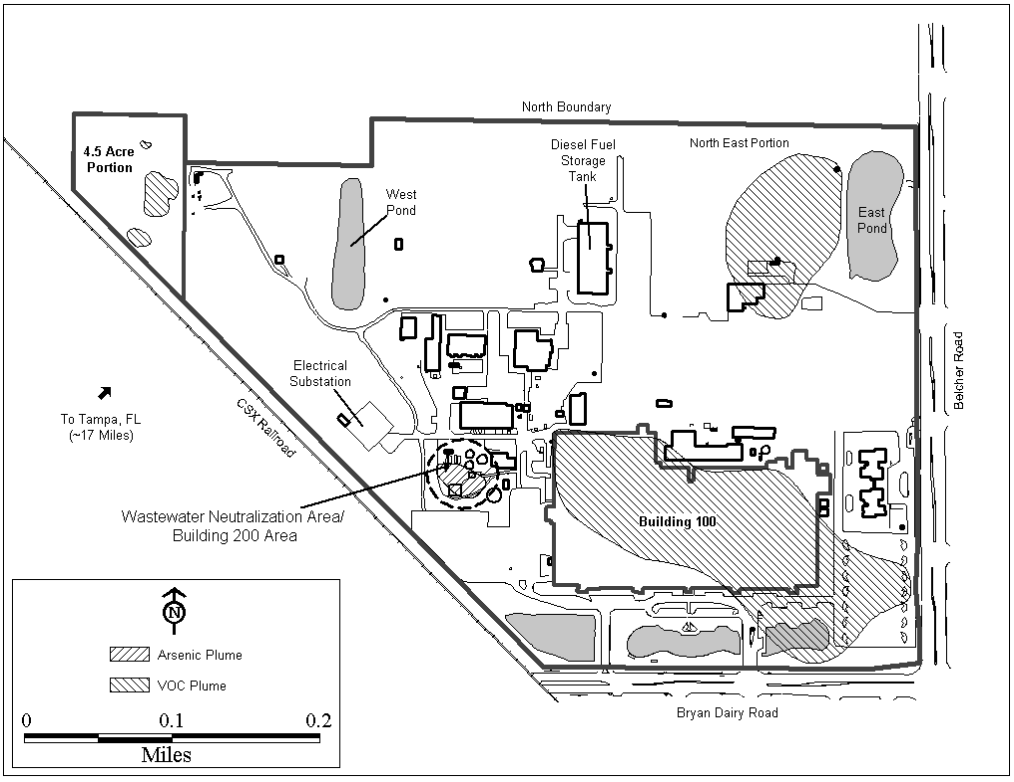
The facility was built in 1956, as part of DOE nuclear weapons research and development program in response to the need for a facility to manufacture neutron generators for use in nuclear weapons. While neutron generators were the principal products of the facility, other products were added over the years, such as thermal batteries, specialty capacitors, crystal resonators, neutron detectors, lightning arrestor connectors, vacuum switch tubes, and other special mechanical and electronic components.

In September 1994, the facility stopped producing weapons-related components and began the transition from a defense mission to an environmental management mission. DOE transferred production capability from the facility to two other DOE sites, the Kansas City Plant and the Sandia National Laboratories, New Mexico. In March 1995, when DOE sold the facility to the Pinellas County Industry Council, DOE leased back a large area of the plant site to facilitate the completion of cleanup activities and to prepare the site for alternative uses as a community resource for economic development. These activities were completed by the end of 1997. The facility is now known as the Pinellas STAR Center and houses more than 20 businesses that range from administrative to light manufacturing.

1.2 Site Cleanup and Accomplishments

As part of the sale to the Pinellas County Industry Council, DOE agreed to clean up all areas contaminated during past performance of government-funded work and to restore them to levels consistent with regulations and planned future use. The resulting contamination consisted of minor surface contamination of previous plant production areas and external groundwater contamination. DOE cleaned up the production areas, and these areas

[1]Surface cleanup at the site was completed in 1999 to an unrestricted use level. Groundwater cleanup is ongoing and expected to continue until 2014. Although the surface was cleaned up to unrestricted use, certain areas of the site are access controlled as part of ongoing groundwater remediation activities and will continue until it is deemed unnecessary.



Pinellas Star Center

were then released to the new owner for unrestricted use in 1997. There are no more surface contaminants at the site.

Under the terms of DOE's Hazardous and Solid Waste Amendments Permit, issued by the U.S Environmental Protection Agency (EPA) in 1990, DOE has completed remediation of the groundwater at one Solid Waste Management Unit (SWMU), the West Fenceline Site. Twelve other SWMUs required no further action. Groundwater remediation, utilizing groundwater extraction and treatment, continue at four SWMUs -- the Northeast Site, the Wastewater Neutralization (WWNA)/Building 200 Area, the Old Drum Storage Site and the Building 100 Area. Once the groundwater meets the federally mandated maximum contaminant levels (MCLs), DOE will be responsible for any long-term surveillance and maintenance requirements that may be required. DOE expects to complete subsurface remediation in 2014.

Remediation of contaminated groundwater is also ongoing at a privately owned parcel of land adjacent to the STAR Center that was previously owned by DOE. Currently, DOE leases the 1.8-hectare site (known as the "4.5-Acre Site") from the landowner and is actively pursuing groundwater remediation by utilizing in-situ biosparging. The Florida Department of Environmental Protection has oversight responsibility for the 4.5 Acre Site.

2.0 SITE-WIDE LONG-TERM STEWARDSHIP

2.1 Long-Term Stewardship Activities

Once the groundwater remediation project is complete, the long-term surveillance and monitoring at the

STAKEHOLDER INVOLVEMENT

Community interaction has been and will continue to be extensive. A federal employee is cost-shared with the county to facilitate communication with the local government.

Pinellas STAR Center may consist of periodic sampling of the site groundwater to monitor for volatile organic compounds.

Site records for environmental remediation at the Pinellas STAR Center are kept in permanent storage at DOE's Grand Junction Office in Grand Junction, Colorado. Types of records include characterization data, remedial action design, completion reports, long-term monitoring plan, annual inspection reports, and any monitoring data.

Final land-use restrictions, if any, will be determined by the appropriate state or federal regulatory agency, in consultation with DOE and Pinellas County, upon completion of cleanup activities. Future land-use restrictions, such as deed restrictions, memoranda of understanding, restrictive easements, and other legal instruments, may be used to minimize the potential exposure to residual levels of contaminated groundwater.

2.2 Assumptions and Uncertainties

DOE assumes that the designated groundwater cleanup levels will be met. If they cannot be met, it may be necessary to apply for alternative cleanup levels because of "technical impracticality," but this will have to be demonstrated to the satisfaction of the appropriate regulatory authority.

The projected schedule and costs for long-term stewardship activities are based upon the assumption that the regulators will require some level of sampling and analysis to be performed following completion of cleanup activities.

2.3 Estimated Site-Wide Long-Term Stewardship Costs

Estimated long-term stewardship costs for the Pinellas STAR Center, identified in the table below, are based on potential monitoring and sampling of groundwater, which is expected to begin in 2015. Until then, the site is expected to continue performing remediation activities, which are funded through the groundwater project.

Site Long-Term Stewardship Costs (Constant Year 2000 Dollars)					
Year(s)	***Amount***	***Year(s)***	***Amount***	***Year(s)***	***Amount***
FY 2000	$0	**FY 2008**	$0	**FY 2036-2040**	$0
FY 2001	$0	**FY 2009**	$0	**FY 2041-2045**	$0
FY 2002	$0	**FY 2010**	$0	**FY 2046-2050**	$0
FY 2003	$0	**FY 2011-2015**	$76,800	**FY 2051-2055**	$0
FY 2004	$0	**FY 2016-2020**	$384,000	**FY 2056-2060**	$0
FY 2005	$0	**FY 2021-2025**	$384,000	**FY 2061-2065**	$0
FY 2006	$0	**FY 2026-2030**	$384,000	**FY 2066-2070**	$0
FY 2007	$0	**FY 2031-2035**	$384,000		

3.0 PORTION OVERVIEW

Remediation activities at the DOE Pinellas STAR Center comprise four areas that may require long-term stewardship: the Building 100/Old Drum Storage Area (combined due to their adjacent location), the Northeast Site, the Wastewater Neutralization/Building 200 Area, and the 4.5 Acre Site. These sites, with the exception

of the 4.5 Acre Site, are designated as SWMUs and have groundwater contamination at levels in excess of protective standards. Contaminants in the groundwater consist of common solvents, such as methylene chloride and trichloroethylene (TCE), used in previous DOE production activities.

The 4.5 Acre Site is under a voluntary cleanup by the State of Florida's Department of Environmental Protection. The three other areas are currently undergoing remediation and are under the purview of the U.S. Environment Protection Agency (EPA), Region IV, Atlanta. Cleanup, for these sites, is being conducted under EPA's *Resource Conservation and Recovery Act* (RCRA) Corrective Action Program and the Hazardous and Solid Waste Amendments of 1984. This legislation requires DOE to investigate and perform remediation activities in areas that are contaminated with hazardous materials resulting from DOE operations. Groundwater quality is routinely monitored to ensure regulatory compliance.

Long-Term Stewardship Information		
Portion	***Long-Term Stewardship Start Year***	***Long-Term Stewardship End Year***
Building 100/Old Drum Storage Area	2015	2035
Northeast	2015	2035
4.5 Acre Site	2015	2035
Wastewater Neutralization Area/Building 200 Area	2015	2035

3.1 Building 100/Old Drum Storage Area

The Building 100/Old Drum Storage Area is located in the southeast area of the STAR Center. The remediation alternative currently being implemented for the Building 100 Area consists of pumping the contaminated groundwater and treating it with an above-ground air-stripper system. Two groundwater recovery wells near the northwest corner of the building extract the contaminated groundwater that is then pumped to an air-stripper system at the Northeast Site. Remediation is ongoing and is expected to be completed by 2014.

BUILDING 100/OLD DRUM STORAGE AREA PORTION HIGHLIGHTS

Major Long-Term Stewardship Activities - groundwater sampling and monitoring
Portion Size - 4 hectares (10 acres)
Estimated Volume of Residual Contaminants - groundwater to be determined
Long-Term Stewardship Start -End Years - 2015-2035

Long-Term Stewardship Activities

At present the site expects to meet the regulatory imposed clean-up standards by 2014. After remediation, it is expected that the regulators may require that the groundwater be routinely monitored to ensure regulatory compliance. Subsequent sampling and analysis, under the long-term surveillance and maintenance program, will most likely be required by the regulator for an as yet undetermined period of time to ensure that site contamination levels do not reoccur.

3.1.1 Estimated Long-Term Stewardship Costs for the Building 100/Old Drum Storage Area

Cost estimates are based on the projected costs for groundwater sampling and monitoring.

Long-Term Stewardship Costs (Constant Year 2000 Dollars)							
FY 2000 - FY 2010	***FY 2011 - FY 2020***	***FY 2021 - FY 2030***	***FY 2031 - FY 2040***	***FY 2041 - FY 2050***	***FY 2051 - FY 2060***	***FY 2061 - FY 2070***	***Estimated Total***
$0	$115,200	$192,000	$96,000	$0	$0	$0	$403,200

3.2 Northeast Site

The Northeast Site is located in the northeastern area of the Pinellas STAR Center. The site has been covered with landscaping grass and contains no permanent buildings. The site encompasses approximately 4.8 hectares (12 acres) and is generally flat, with slight elevation changes near the pond. Access to the Northeast Site is restricted and protected by fencing. The Northeast Site was the location of a former waste solvent staging and storage area. From the late 1950s to the late 1960s, before construction of the East Pond, an existing swampy area at the site was used to dispose of drums of waste and construction debris. The East Pond was excavated in 1968 as a borrow pit. In 1986, expansion of the East Pond was initiated to create additional storm water retention capacity. Excavation activities ceased when contamination was detected directly west of the East Pond.

NORTHEAST SITE PORTION HIGHLIGHTS

Major Long-Term Stewardship Activities - groundwater sampling and monitoring
Portion Size - 4 hectares (12 acres)
Estimated Volume of Residual Contaminants - groundwater to be determined
Long-Term Stewardship Start-End Years - 2015-2035

The Northeast Site consists of a shallow groundwater aquifer contaminated with a variety of volatile organic contaminants, including chlorinated solvents such as TCE, methylene chloride, dichloroethene (DCE), and vinyl chloride. The primary management practice that contributed to contamination was the disposal of construction debris and drums/containers of resin. Contamination at the Northeast Site is believed to be the result of leakage of solvents or resins from those drums. As a result of the contamination, an Interim Corrective Measures Study was conducted and approved by EPA. In January 1992, an interim groundwater recovery system for the Northeast Site was installed and began operation. The system consisted of groundwater recovery wells that extracted the groundwater for temporary storage in a holding tank before being pumped to the existing 4.5 Acre Site groundwater treatment system for treatment.

In 1996, DOE submitted a Corrective Measures Implementation Plan to EPA and the Florida Department of Environmental Protection for the Northeast Site. This plan, which recommended a stand-alone pump-and-treat groundwater recovery system for the site, was approved by the regulators in 1997. Installation and initial operation of the system was completed in 1997.

Long-Term Stewardship Activities

At present, DOE expects that the site will meet the regulatory imposed cleanup standards by 2014. After remediation, it is expected that groundwater will be routinely monitored to ensure regulatory compliance. Subsequent sampling and analysis, under the long-term surveillance and maintenance program, will most likely be required by the regulator for an as yet undetermined period of time to ensure that site contamination levels do not reoccur.

3.2.1 Estimated Long-Term Stewardship Costs for the Northeast Site

Cost estimates are based on the projected costs for groundwater sampling and monitoring.

Long-Term Stewardship Costs (Constant Year 2000 Dollars)							
FY 2000 - FY 2010	***FY 2011 - FY 2020***	***FY 2021 - FY 2030***	***FY 2031 - FY 2040***	***FY 2041 - FY 2050***	***FY 2051 - FY 2060***	***FY 2061 - FY 2070***	***Estimated Total***
$0	$115,200	$192,000	$96,000	$0	$0	$0	$403,200

3.3 4.5 Acre Site

The 4.5-Acre Site, originally part of the Pinellas Plant, was sold to a private individual in 1972. During the 1960s, the site was used for subsurface disposal of drummed waste solvent and waste resinous materials. Buried drums were uncovered during a geophysical survey of the area in 1984. Subsequently, 83 drums and 275 metric tons (303 tons) of soil were removed and disposed of at an EPA-approved disposal facility.

4.5 ACRE SITE PORTION HIGHLIGHTS

Major Long-Term Stewardship Activities - groundwater sampling and monitoring
Portion Size - 1.8 hectares (4.5 acres)
Estimated Volume of Residual Contaminants - groundwater to be determined
Long-Term Stewardship Start-End Years - 2015-2035

All phases of the site assessment, including identification of groundwater contamination, were reported in a Contaminant Assessment Report published in May 1986. The surficial aquifer was contaminated with volatile organic compounds (VOC), primarily vinyl chloride, toluene, TCE, and DCE. The results presented in that report prompted DOE to complete a Feasibility Study. Several remedial alternatives were provided in the Feasibility Study report and its associated Work Plan. The Feasibility Study report recommended hydraulic containment and recovery of the contaminated groundwater and onsite treatment. An Interim Remedial Action consisting of groundwater extraction and treatment, via air stripping, and a routine groundwater monitoring program were initiated in May 1990. In July 1997, a modification involving installation of dual-phase extraction (DPE) wells provided a more aggressive system to remove groundwater contamination. In 1999, DOE replaced the DPE/air stripping system with an in situ biosparging system. Biosparging introduces oxygen into the subsurface for biodegradation purposes and has the potential for significantly reducing clean up time. All activities associated with this site are voluntarily conducted consistent with the Florida Department of Environmental Protection Corrective Actions for Contamination Sites.

Long-Term Stewardship Activities

At present, DOE expects that the site will meet the regulatory imposed cleanup standards by 2014. Subsequent sampling and analysis, under the long-term surveillance and maintenance program, will most likely be required by the regulator for an as yet undetermined period of time to ensure that site contamination levels do not reoccur.

3.3.1 Estimated Long-Term Stewardship Costs for the 4.5 Acre Portion

Cost estimates are based on the projected costs for groundwater sampling and monitoring.

Long-Term Stewardship Costs (Constant Year 2000 Dollars)							
FY 2000 - FY 2010	***FY 2011 - FY 2020***	***FY 2021 - FY 2030***	***FY 2031 - FY 2040***	***FY 2041 - FY 2050***	***FY 2051 - FY 2060***	***FY 2061 - FY 2070***	***Estimated Total***
$0	$115,200	$192,000	$96,000	$0	$0	$0	$403,200

3.4 Wastewater Neutralization Area/Building 200 Area

WASTEWATER NEUTRALIZATION AREA/BUILDING 200 AREA PORTION HIGHLIGHTS

Major Long-Term Stewardship Activities - groundwater sampling and monitoring
Portion Size - 0.14 hectare (0.35 acre)
Estimated Volume of Residual Contaminants - groundwater to be determined
Long-Term Stewardship Start-End Years - 2015-2035

The Wastewater Neutralization Area/Building 200 Area consists of the active Wastewater Neutralization Facility, the area around Building 200, and the area south of the Wastewater Neutralization Facility. The Wastewater Neutralization Facility, a physical treatment plant that currently receives sanitary and industrial wastewater, has been in operation since 1957.

A Corrective Measures Study Report and Corrective Measure Implementation Plan were completed in 1997 for this SWMU because contaminant concentrations above Federal and State maximum contaminant levels were detected in groundwater samples from the surficial aquifer. The recommended cleanup alternative for this SWMU is a recovery well located in the Wastewater Neutralization Facility and limited soil removal. Contaminated soil was removed in 1999. Groundwater recovered from this recovery well will be discharged directly to the Pinellas County publicly-owned treatment works.

Long-Term Stewardship Activities

At present, DOE expects that the site will meet the regulatory imposed cleanup standards by 2014. Subsequent sampling and analysis, under the long-term surveillance and maintenance program, will most likely be required by the regulator for an as yet undetermined period of time to ensure that site contamination levels do not reoccur.

3.4.1 Estimated Long-Term Stewardship Costs for the Waste Neutralization Area/Building 200 Area

Cost estimates are based on the projected costs for groundwater sampling and monitoring.

Long-Term Stewardship Costs (Constant Year 2000 Dollars)							
FY 2000 - FY 2010	***FY 2011 - FY 2020***	***FY 2021 - FY 2030***	***FY 2031 - FY 2040***	***FY 2041 - FY 2050***	***FY 2051 - FY 2060***	***FY 2061 - FY 2070***	***Estimated Total***
$0	$115,200	$192,000	$96,000	$0	$0	$0	$403,200

4.0 FUTURE USES

In March 1995, DOE sold the facility to the Pinellas County Industry Council. In 1999, Pinellas County assumed ownership of the facility. The future uses of the facility will primarily be industrial. Over 20 businesses now occupy the facility, with approximately 1500 employees. DOE remains responsible for completion of current groundwater remediation and remediation of other contamination discovered in the future if it can be linked to former DOE operations on the site.

For more information about the Pinellas STAR Center, please contact:

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